

1 Attorney Docket No. 84280

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3 **A METHOD TO ESTIMATE THE MECHANICAL PROPERTIES OF A SOLID**
4 **MATERIAL SUBJECTED TO INSONIFICATION**

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6 **ABSTRACT OF THE DISCLOSURE**

7 A method for measuring the complex frequency-dependent
8 dilatational and shear wavespeeds of a slab of material
9 subjected to insonification. Transfer functions that are
10 obtained by insonifying the material at different angles. Once
11 this is accomplished, the transfer functions are manipulated
12 with an inverse method to yield closed form values of
13 dilatational and shear wavespeeds at any test frequency. The
14 wavespeeds can be combined to determine complex Lamé constants,
15 complex Young's modulus, complex shear modulus, and complex
16 Poisson's ratio.